

ON THE GENUS HELIOCOCCUS (COCCIDÆ)

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ONE PLATE AND FOUR TEXTFIGURES

(Received Feb. 27, 1935)

Genus *Heliococcus* Šulc

Heliococcus Šulc Čas. České, Spol. Entomolog. Prag. 9 p. 39 Taf. (1912).

Saliococcus Kanda, Two new gen. Japan. Cocci. Ins. World, Vol. 38, No. 9, p. 308-309, f. 1-7. (1934).

Adult female oval or oblong oval. Antennæ 9-jointed. Constructs no ovisac. Legs rather large and the claw with tooth or a denticle on the inside.

Dorsal surface more or less covered with white powdery secretion and many fine, straight, silky filaments are sent out. Margin of body with a complete series of sharply defined, oval or rather round chitinous plates, each of which bears a cluster of stout conical spines and numerous small ceriferous pores. Dermis with many large spiniferous glandular pores projecting very long silky filaments.

This genus resembles *Phenacoccus* in form, but differs from it in having spiniferous glandular pores.

Genotype.—*Heliococcus bohemicus* Šulc.

Heliococcus takae (Kuwana)

Dactylopius takae Kuwana, Synop. list Cocci. Japan. In Bull. Imp. Centr. Agr. Exp. Sta. Japan, Vol. 1, No. 2, p. 184, Pl. 30, f. 34-48. (1907).

Phenacoccus takae Kuwana, Nippon Kaigaramushi Zusetsu. Vol. 2, p. 122-124, Pl. 23, f. 6-7, Pl. 24, f. 5-7. (1917).

Saliococcus takae Kanda, Two new gen. Japan. Cocci. Ins. World, Vol. 38, No. 9, p. 309-311, f. 1-4. (1934).

Adult female elongate, convex above and the sides nearly parallel,

about 6 mm long, 3 mm broad, yellowish-brown in colour, completely concealed by a close covering of white mealy powder and shoots out many fine, straight, silky filaments on the dorsal surface, segmentation distinct, the margin fringed with about 13 narrow waxy tassels on each side, excepting anal filaments. Antennæ 9-jointed; the 1st joint broadest and subequal in length, but all remaining joints longer than wide;

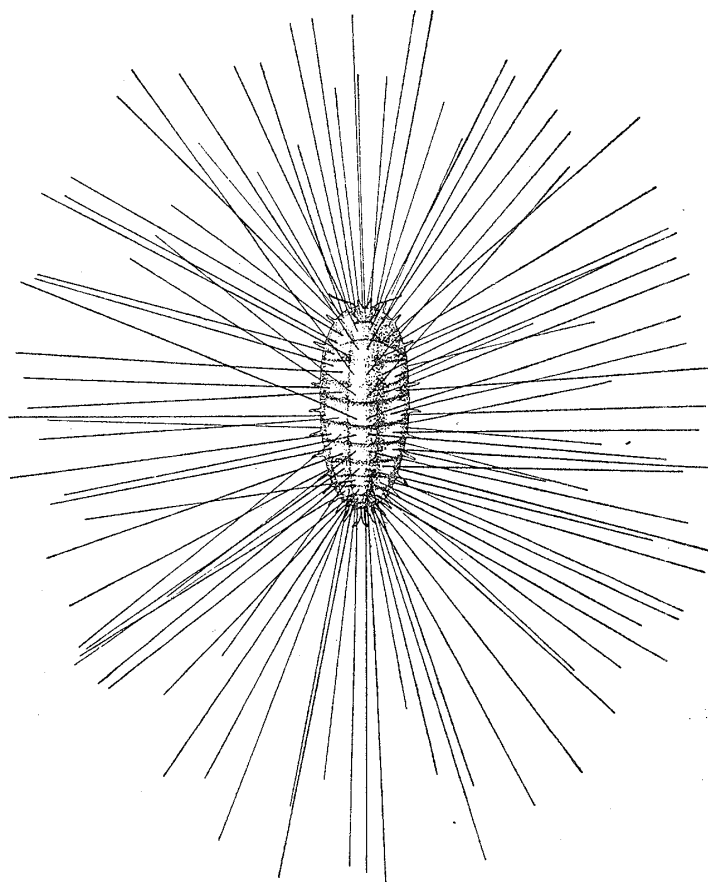


Fig. 1. Dorsal view of *Heliococcus takae* (Kuwana) ♀.

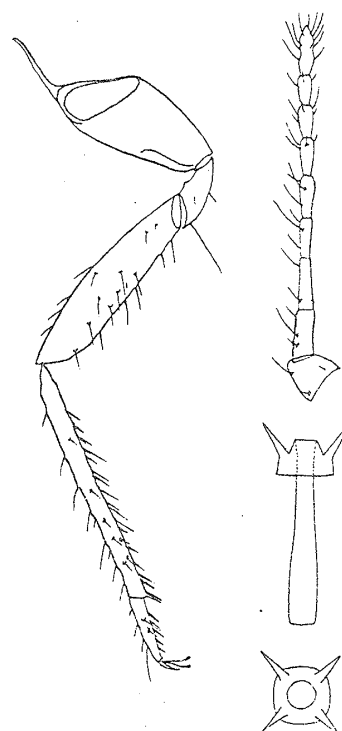


Fig. 2. Antenna, posterior leg, and large glandular pores of *Heliococcus takae* (Kuwana) ♀.

the 2nd longest and about twice as long as the 5th; the 3rd next longest and tapers towards the end; the 8th shortest; 6th and 7th next shortest; the 1st joint with 4 hairs; the 2nd with 8 hairs; the 3rd with 5; the 4th with 4; the 5th with about 8; the 6th with 5; the 7th and 8th each with 5 hairs and one stout curved spine; the terminal joint with 14 hairs in all. The total length of antenna is about 0.8 mm. Antennal formula 2, 3, 9, 1, 5, 4, 6, 7, 8, but sometimes 2, 3, 9, 5, 1, 4, (6, 7), 8. Measurements of a few representative antennæ in microns are as follows:

I	II	III	IV	V	VI	VII	VIII	IX	Total
97	121	112	84	94	75	75	62	109	829
89	124	112	81	97	82	72	63	105	825
82	120	107	78	90	75	61	57	102	772
90	135	105	81	93	78	71	60	97	810
94	130	109	79	92	73	72	58	103	810

Eyes brown, hemispherical, prominent; each placed behind the antennæ. Mouth parts rather small; the loop wider than long; labium not segmented, which is conical in shape and longer than wide, with about 16 bristles near the distal end.

The middle parts of spiracles much constricted, the outside much wider than the inside, pores wanting; the anterior ones placed behind the anterior legs; the posterior ones larger and placed behind the mid-legs.

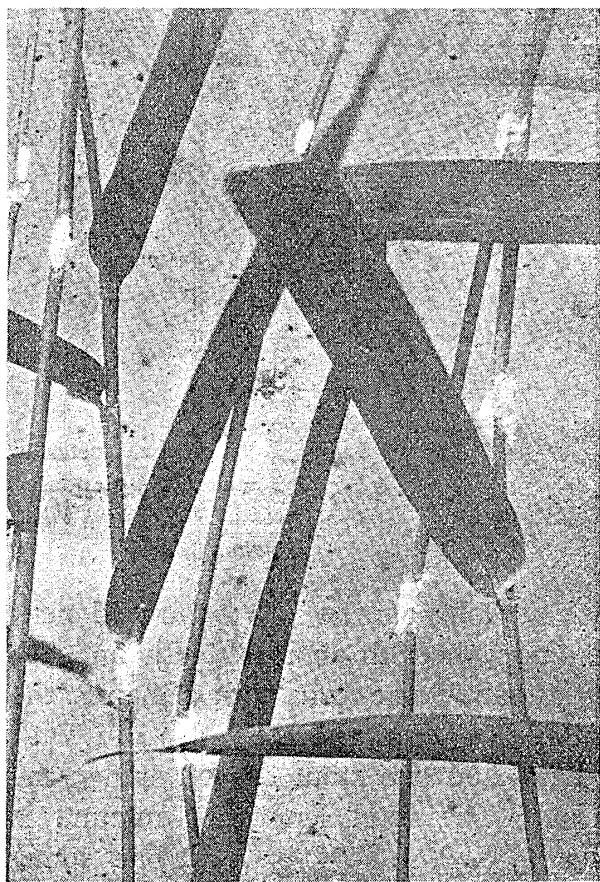


Fig. 3. *Heliococcus takae* (Kuwana) ♀ on the host plant.

Three pairs of legs rather long and slender, each with many bristles; tibia and tarsus much slender, they are one half the breadth of the femur; each tarsus shorter than tibia, but trochanter and femur together slightly longer than tibia; each tarsus equal, and shorter than one third the length of tibia; femur and tibia of the posterior leg are longer than those of anterior or mid-leg; claw long and slender, slightly falcated, with two ungual digitules on the base and a denticle at the middle of the inside.

Ceriferous tracts present, 26 in all along the whole margin, of which 2 are on the front between antennæ, with about 3 spines and 7 triangular pores; the 2nd tract

conspicuous, chitinized plate with about 9 spines and 14 pores; the 3rd tract with 3 or 4 spines and 7 or 9 pores; the 4th always with 8 spines, 13 pores; the 5th with about 6 spines, 10 pores; the 6th with about 4 spines, 11 pores; the 7th which is the 1st segment of abdomen with about 2 spines and 10 pores; the 8th with 4 and 13; the 9th with 7 and 12; the 10th with 4 and 11; the 11th with 6 and 13; the 12th with 8 and 10; the 13th which is the last cerarii very large, prominent, with about 8 spines, 20 pores, two large, spiniferous, glandular pores, a long seta about 0.37 mm in length, and a few short setæ.

Abdomen consists of 7 segments and tapers gradually curving towards the caudal end.

Dorsal dermis with many scattered triangular wax pores, large glandular pores, which bear 3 or 4 spines, and rather small glandular pores. Ventral surface with many large circular pores, besides triangular pores. Anal ring chitinized on the margin, with many small pores around; anal setæ 6 in number, equal in length, measuring about 23 mm.

Nom. Japon.—Take-no-watakaigaramodoki.

Host.—*Arundinaria* sp.

Hab.—Honshû.

Heliococcus takahashii n. sp.

Full adult female oblong oval, about 5 mm long, 2.5 mm broad, dorsal surface convex and completely covered with white secretion, with a marginal fringe of rather stout waxy appendages which are short on the thorax and moderately long at the abdominal extremity. In many examples the marginal fringe is imperfect, persisting on the posterior segments only. Colour of denuded insect pale, honey-yellow. Early adult female oval, flattish, with a complete fringe of contiguous large white waxy processes; each process slender, but appears broadly dilated and rather flattened by fusion of 2 or 3 processes: body about 3 mm long, 2 mm broad: dorsal surface slightly covered with white mealy powder, excepting 4 falcated spots of ground colour.

Antennæ are composed of 9 segments, with long bristles; the 1st joint about as long as broad; the 2nd longest; the 3rd next longest; the 7th, 8th, subequal in length and shortest; the 1st joint with about 3 hairs; the 2nd and 3rd with about 5; the 4th, 5th and 6th with about 4; the 7th and 8th with about 6; the 9th, which is the terminal joint, with about 13. The total length of antenna is about 0.66 mm.

Antennal formula: 2, 3, 9, 5, 1, 6, 4, 7, 8. Measurements of a few representative antennæ in microns are as follows:

I	II	III	IV	V	VI	VII	VIII	IX	Total
75	105	99	63	81	69	59	59	90	700
61	99	90	57	67	54	51	51	69	599
72	101	98	61	79	68	55	55	91	680
75	103	98	63	80	68	58	58	88	691
63	102	94	59	72	60	52	53	87	642

Eyes hemispherical, each placed behind the antennæ. Mouth parts well formed; labium not segmented and apex rather rounded with ten or more bristles, which is conical in shape.

Two pairs of thoracic spiracles slightly constricted at the middle parts, the outside very widely opened; the anterior ones placed behind the anterior legs; the other ones larger and placed behind the mid-legs. Three pairs of legs rather large and similar; femur and tibia of the anterior or mid-leg subequal in length, but tibia of the posterior

leg slightly longer than femur; tarsus subequal to each other; tibia of the anterior or mid-leg shorter than 3 times as long as tarsus, but in the posterior leg, tibia is slightly longer than 3 times of tarsus.

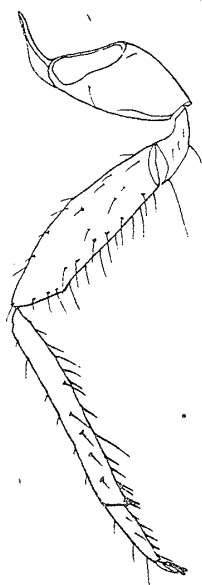


Fig. 4. Posterior leg of *Heliococcus takahashii* n. sp. ♀.

On the dorsal dermis are scattered many triangular wax pores and spiniferous glandular pores. Margin of dorsal dermis with 18 chitinous plates on each side, of which 4 plates are on the front between the antennæ; the 1st plate with about 6 conical spines and 7 triangular pores; the 2nd with about 4 spines and 6 pores; the 3rd rather large, and placed outside near the base of antenna, usually with a cluster of about 15 spines and 16 pores; the 4th with about 9 spines and 15 pores; from the 5th to the 16th with about 6 spines and 10 pores; the 17th with about 8 spines and 15 or more pores; the 18th largest which is nearly over the whole surface of anal lobe, with about 15 spines, 30 or more pores, a long stout seta, 0.34 mm in length, and a next long seta, about 0.13 mm long.

Ventral surface with many large circular pores and some bristles. Anal ring oval, chitinized on the margin; 6 anal setæ about 0.15 mm

in length, longer than diameter of the ring, much shorter than the longest seta of anal lobe.

Nom. Japon.—Takahashi-watakaigaramodoki.

Host.—*Arundinaria* sp.

Locality.—Mitsuzawa, Yokohama, Japan.

Type.—Female; Mitsuzawa, Yokohama; April 6. 1933. Collected and owned by the writer; on *Arundinaria* sp.

Notes.—Full adult female resembles *Heliococcus takae* Kuwana, but it is easy to distinguish from the latter by the number of waxy tassels or ceriferous tracts.

The writer takes pleasure of naming this species in honour of Dr. Ryôichi Takahashi.

In conclusion, the writer's heartiest thanks are due to Dr. R. Takahashi who kindly gave him an information that the genus *Saliococcus* is the synonym of the genus *Heliococcus*.

EXPLANATION OF PLATE 4

Heliococcus takashii n. sp. Adult females on the host plant.

ON THE GENUS HELIOCOCCUS
SIGEO KANDA

PLATE 5

